

WHAT IS CLAIMED IS:

1. An image processing apparatus, comprising:
  - image input means for inputting an image signal relating to a television broadcast;
  - 5 menu generation means for generating a menu image signal representing an operation menu relating to processing of the image signal and having a plurality of menu portions at different hierarchical levels each including at least one menu item;
  - 10 display control means for displaying on a display unit an image corresponding to the image signal output from said image input means and the operation menu corresponding to the menu image signal generated by said menu generation means;
  - 15 instruction input means for receiving an instruction from an operating unit including a plurality of function keys and selection means for selecting a desired item in the operation menu displayed on said display unit;
  - 20 assignment means for assigning, according to a predetermined operation by the operating unit, a function according to one item selected by said selection means from the items in the operation menu displayed on said display unit to one of said plurality
  - 25 of function keys; and
  - control means for controlling, in response to said operation of the function key, said image input means

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to execute processing corresponding to the function assigned to said function key by said assignment means.

2. An apparatus according to claim 1, wherein  
5 said menu generation means further generates a registration menu image signal representing a registration menu having a plurality of items corresponding to said plurality of function keys, and outputs the registration menu image signal to said  
10 display control means.

3. An apparatus according to claim 2, wherein  
said menu generation means generates said registration menu image signal so that said registration menu is  
15 displayed adjacent to said operation menu.

4. An apparatus according to claim 2, wherein  
said selection means is also capable of selecting one of the items in said registration menu as desired, and  
20 said assignment means assigns the function corresponding to the item selected from said operation menu by said selection means to one of the function keys corresponding to the item selected from the registration menu by said selection means.

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5. An apparatus according to claim 2, wherein  
said assignment means performs said assignment

operation according to the key operation performed by said operating unit to determine one of the items in said registration menu as desired.

5           6. An apparatus according to claim 2, wherein said assignment means performs said assignment operation in response to the absence of any operation by said operating unit during a predetermined time period.

10           7. An apparatus according to claim 1, wherein said menu portion at the lowest level includes a plurality of menu items corresponding to said plurality of function keys, and said assignment means assigns the  
15 function corresponding to the item selected from said operation menu by said selection means to one of the function keys corresponding to the item selected from the menu items at the lowest level by said selection means.

20           8. An apparatus according to claim 1, wherein said control means controls said control object in order to execute the function corresponding to the item selected by said selection means from the operation  
25 menu displayed on said display unit.

9. An apparatus according to claim 1, wherein

said operating unit comprises a remote control device.

10. An apparatus according to claim 1, wherein  
said menu generation means includes a storage unit for  
5 storing image data representing said operation menu.

11. An apparatus according to claim 1, wherein  
said menu generation means includes a storage unit for  
storing character code data and font data representing  
10 said operation menu.

12. An apparatus according to claim 1, wherein  
said assignment means includes a memory for storing  
code data representing functions assigned to said  
15 plurality of function keys.

13. An apparatus according to claim 1, wherein  
said display control means synthesizes a combined image  
signal by combining the image signal output from said  
20 image input means and the menu image signal generated  
by said menu generation means, and displays an image  
corresponding to said combined image signal on the  
display unit.

25 14. A signal processing apparatus, comprising:  
signal input means for inputting an image signal  
and an audio signal relating to a television broadcast;

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menu generation means for generating a menu image  
signal representing an operation menu relating to  
processing of the audio signal and having a plurality  
of menu portions at different hierarchical levels each  
5 including at least one menu item;

audio output means for outputting, to an audio  
monitor, sound relating to the audio signal output from  
said signal input means;

10 display control means for displaying on a display  
unit an image corresponding to the image signal output  
from said signal input means and the operation menu  
corresponding to the menu image signal generated by  
said menu generation means;

15 instruction input means for receiving an  
instruction from an operating unit including a  
plurality of function keys and selection means for  
selecting a desired item in the operation menu  
displayed on said display unit;

20 assignment means for assigning, according to a  
predetermined operation by said operating unit, a  
function corresponding to one item selected by said  
selection means from the items in operation menu  
displayed on said display unit to one of said plurality  
of function keys; and

25 control means for controlling, in response to the  
operation of said function key, said audio input means  
to execute processing corresponding to the function

assigned to said function key by said assignment means.

15. A television receiver, comprising:

receiving means for receiving a television

5 broadcast;

image processing means for processing an image  
signal relating to the television broadcast received by  
said receiving means;

10 audio processing means for processing an audio  
signal relating to the television broadcast received by  
said receiving means;

a display unit;

a speaker for outputting sound corresponding to  
the audio signal processed by said audio processing;

15 menu generation means for generating a menu image  
signal representing an operation menu having a  
plurality of menu portions at different hierarchical  
levels and relating to processing of the image signal  
and the audio signal;

20 display control means for synthesizing a combined  
image signal by combining the image signal output from  
said image processing means and the menu image signal  
generated by said menu generation means, and for  
displaying an image corresponding to the combined image  
25 signal on said display unit;

instruction input means for receiving an  
instruction from a remote controller having an

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including of function keys and selection means for selecting a desired item in the operation menu displayed on said display unit;

assignment means for assigning, according to a  
5 predetermined operation by said remote controller, a function according to one item selected by said selection means from items in the operation menu displayed on said display unit to one of said plurality of function keys; and

10 control means for controlling, in response to the operation of said function key, said image processing means and said audio processing means to execute processing according to said function assigned to the function key by said assignment means.

15 16. An image processing method, comprising the steps of:

inputting an image signal relating to a television broadcast;

20 generating a menu image signal representing an operation menu relating to processing of the image signal and having a plurality of menu portions at different hierarchical levels each including at least one menu item;

25 displaying on a display unit an image corresponding to the image signal obtained in said signal input step and the operation menu corresponding

to the menu image signal generated in said menu generation step;

receiving an instruction from an operating unit including a plurality of function keys and selection means for selecting a desired item in the operation menu displayed on the display unit;

assigning, according to a predetermined operation by the operating unit, a function corresponding to one item selected by said selection means from the items in the operation menu displayed on said display unit to one of the plurality of function keys; and

controlling, in response to said operation of the function key, said signal input step to execute processing according to the function assigned to said function key in said assignment step.

17. A signal processing method, comprising the steps of:

inputting an image signal and an audio signal relating to a television broadcast;

generating a menu image signal representing an operation menu relating to processing of the audio signal and having a plurality of menu portions at different hierarchical levels each including at least one menu item;

outputting, to an audio monitor, sound corresponding to the audio signal obtained in said

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signal input step;

displaying on a display unit an image  
corresponding to the image signal obtained in said  
signal input step and the operation menu corresponding

5 to the menu image signal generated in said menu  
generation step;

receiving an instruction from an operating unit  
including a plurality of function keys and selection  
means for selecting a desired item in the operation  
10 menu displayed on the display unit;

assigning, according to a predetermined operation  
by said operating unit, a function according to one  
item selected by said selection means from the items in  
operation menu displayed on said display unit to one of  
15 said plurality of function keys; and

controlling, in response to the operation of the  
function key, said audio input step to execute  
processing corresponding to the function assigned to  
said function key in said assignment step.

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